

PART I – THE SCHEDULE

SECTION C

DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

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## C-1 SUMMARY DESCRIPTION OF WORK

Battelle Memorial Institute (Contractor) shall, in accordance with the provisions of this Contract, accomplish the missions assigned by the Department of Energy (DOE); and perform the work described in this Statement of Work (SOW) by providing the intellectual leadership and management expertise necessary and appropriate to manage, operate, and staff the Pacific Northwest National Laboratory (the Laboratory). Management of the Laboratory includes operation of the Government and private facilities assigned to the Contractor, including facilities off-site, if any, used for DOE work. As directed by DOE, the Contractor shall maintain and enhance the Laboratory's core technical capabilities and carry out appropriate public outreach activities consistent with its mission. DOE missions are assigned through strategic planning, program coordination, and cooperation between the Contractor and DOE.

Inasmuch as the assigned missions of the Laboratory are dynamic, this SOW is not intended to be all inclusive or restrictive, but is intended to provide a broad framework and general scope of the work to be performed by the Contractor at the Laboratory. This SOW does not represent a commitment to, or imply funding for, specific projects or programs. All projects and programs will be authorized individually by DOE and/or other work sponsors in accordance with the provisions of this Contract.

Work under this Contract shall be conducted by the Contractor in a manner that will protect the environment and ensure the safety and health of employees and the public. In performing the Contract work, the Contractor shall implement appropriate program and project management systems to track progress and enhance cost effectiveness of work activities; develop integrated plans and schedules to achieve program objectives, incorporating appropriate input from DOE and stakeholders; maintain sufficient technical depth to manage activities and projects throughout the life of a program; utilize appropriate technologies to reduce costs and improve performance; and maintain Laboratory facilities as necessary to accomplish assigned missions.

## C-2 MISSIONS OF THE LABORATORY

The Laboratory's mission is documented within DOE strategic and mission plans and is annually updated as necessary within the Laboratory's Institutional Plan. In support of DOE organizations, the mission of the Laboratory is to serve as a national resource in science and technology research, development, and deployment focussing on, but not necessarily limited to, the following:

### (a) Environmental Quality Mission

The Contractor shall develop and deploy technology to: 1) solve national issues related to the management and remediation of hazardous and/or radioactive waste and environmental contamination and 2) reduce future environmental concerns. The Contractor shall support the DOE in developing scientifically sound tools for risk assessment and management and in carrying out risk assessment for DOE sites as appropriate. The Contractor shall contribute to the development of inherently clean process technology, both through basic science and development of technology for environmentally conscious processing and pollution prevention.

The Contractor shall make enduring and strategic investments in the environmental quality mission area. The Contractor shall manage the Laboratory to contribute to larger national environmental activities while supporting the Hanford Site cleanup mission.

The DOE's expected Outcomes for Environmental Quality are built on a foundation of the best science and technology for improved environmental stewardship and sustainable development, and advancement of environmental technologies into the next century. The Contractor shall, in addition to other tasks that may be assigned by DOE, provide management and operations, technical, and scientific direction and support to:

- (1) provide a scientifically defensible basis for assessing and understanding risk as a part of environmental management decision making;
- (2) focus technology development and deployment, particularly with regard to long-term solutions that substantively reduce life-cycle costs and risks (e.g. bioremediation, in situ technologies, separations);
- (3) develop partnerships with other Federal laboratories, industry, and academia;
- (4) deploy environmental technologies in partnerships with the commercial sector; and
- (5) develop partnerships with users for technical management of the national science and technology development programs.

To support Hanford, the Contractor shall provide overall coordination of the work associated with the Environmental Technology Program, provide primary facilitation support to the Site Technology Coordination Group, provide support to the Hanford Technology Deployment Center, and provide services to EM programs at the Hanford Site such as Environmental Restoration, Waste Management, and Facilities Transition.

Further, the Contractor shall support the TWRS Program by assisting DOE-RL's Waste Disposal Division in establishing the Waste Disposal Integration Team (WIT) Project. The WIT project assists DOE in carrying out the full range of its responsibilities associated with executing the TWRS mission.

In addition, the Contractor shall support the DOE's Environmental Management Office of Technology Development (EM-50) programs as the technical lead for the national Tank Focus Area and provide "best in class" technology for other national Focus Areas and cross-cutting programs.

(b) The Energy Resources Mission

The Contractor shall conduct research to develop and deploy technology to improve the efficiency and cost effectiveness and lessen environmental impacts from devices used for the generation, transmission, distribution, storage, and utilization of electric power and for the efficient use of natural gas. In addition, the Contractor shall support international agreements and enhance energy safety and reliability in the Former Soviet Union and elsewhere as directed by the DOE, contribute to the understanding of scientific, technological and policy issues that impact energy policy and global environmental change, and contribute to energy efficiency in transportation and industrial processes.

The Contractor shall manage the Laboratory to focus on enhancing the utilization of existing energy assets and developing a new generation of distributed energy systems.

The DOE's expected Outcomes for the Energy Resources Mission are to increase the Nation's energy security through expansion of the resource base; environmental protection through reduced pollution from traditional energy sources, competitive renewable energy, and knowledge for sound energy policy choices; and increasing energy productivity through efficiency of consumption and production. The Contractor shall, in addition to other tasks that may be assigned by DOE, provide management and operations, technical, and scientific direction and support to:

- (1) improve transmission, distribution, and utilization of electricity and gas;
- (2) improve energy efficiency and use in buildings;
- (3) reduce emissions and weight in motor vehicles;
- (4) reduce energy consumption and wastes produced in industrial processes;
- (5) develop international agreements and facilitation of energy safety and reliability improvements in the Former Soviet Union; and
- (6) enhance understanding of the technological and policy issues that impact energy policy and global environmental change.

(c) The Science Mission

The Contractor shall conduct fundamental research in the environmental and energy sciences, including contaminant transport and fate in the atmosphere and in the subsurface and marine environments, the interaction of contaminants with living systems, and climate research. The Contractor shall conduct work in the materials, chemical, and life sciences with particular emphasis on environmental, energy, health and medical as well as information systems applications.

The Contractor shall manage the Laboratory to support the Science Mission of the DOE. Science and technology activities also include education and training programs to develop and maintain a U.S. work force that is literate in science, mathematics, engineering, and technology.

The DOE's expected Outcomes for the Science mission are the development of leading-edge research facilities with access by academic, industrial and laboratory scientists and engineers; advances in materials and chemical processing for new and efficient energy systems and environmental protection; multi-disciplinary integration of a diverse set of sciences for environmental cleanup; research on advanced plasma and fusion science, expansion and efficient use of energy sources, and medical and human health; and advanced computer models of global climate. The Contractor shall, in addition to other tasks that may be assigned by DOE, provide management and operations, technical, and scientific direction and support to:

- (1) establish and operate the William R. Wiley Environmental Molecular Science Laboratory (EMSL) as a state-of-the-art DOE research user facility, thereby advancing the frontiers of environmental molecular science and applying that science to DOE's environmental quality and other mission needs;

- (2) bring basic scientific and technological capabilities to bear on a wide range of applied science programs to enhance the effectiveness of these programs;
  - (3) understand the behavior of contaminants in subsurface, marine, and atmospheric environments;
  - (4) enhance fundamental knowledge related to environmentally and industrially important processes, such as chemical separations and the behavior of complex fluids;
  - (5) bring emerging supercomputing technologies to bear on modeling complex physical systems;
  - (6) advance understanding of the health effects of chemical and radioactive substances;
  - (7) improve understanding of environmentally important microbial systems;
  - (8) establish and utilize alliances/collaborations with outside experts whose skills and capabilities complement the Laboratory's strengths;
  - (9) produce and distribute Yttrium-90, focusing on reducing government subsidy by developing a prototype Bi-213 generator and continue to make available a source of alpha emitting isotopes; identifying new process development, products or privatization initiatives; providing input to and review support of documentation related to beneficial uses of radioisotopes; and
  - (10) build strategic research/educational partnerships as detailed in C-3(c) of this Statement of Work.
- (d) National Security Mission

The Contractor shall support national security policy development and implementation and develop and apply technology to implement national security policy, particularly in the areas of nonproliferation and arms control; support international cooperative efforts in nuclear safety and environmental security; and provide technologies to meet additional national security requirements identified by DOE.

The Contractor shall, as provided in DOE's strategic plans, support DOE's National Security Core Business Area, including DOE's role and responsibilities in the U.S. Interagency national security infrastructure.

The Contractor shall, in addition to other tasks that may be assigned by DOE, provide management and operations, technical, and scientific direction and support to:

- (1) support national policy development and implementation;
- (2) develop technology to implement national security policy, particularly in the areas of nonproliferation and arms control;

- (3) develop technology to meet national security requirements generated by the disparate threats generated across the broad spectrum of mission requirements; and
- (4) enhance international security through cooperative efforts in nuclear safety and environmental security.

### C-3 OTHER RELATED WORKSCOPE

The Contractor shall plan, manage and execute other research and development programs as directed or approved by DOE. In addition, the Contractor shall, in fulfillment of the Hanford Mission and Strategic Plan, perform technology transfer, support economic development for the local community, and apply existing Hanford assets (such as the Fast Flux Test Facility) to new science-based missions.

#### (a) Human Health Research

The Contractor shall provide scientific knowledge and innovative technologies to DOE programs directed toward human health protection and enhancement, including providing medical applications of technology developed for DOE to serve other purposes. The Contractor shall use and develop capabilities to:

- (1) establish acceptable exposure standards;
- (2) measure exposure(s) of individuals; and
- (3) assess and manage risks of human exposures.

In addition, the Contractor shall design and demonstrate technologies useful in the diagnosis of, and therapy for, human diseases. Further, the Contractor shall develop knowledge for applications in genomics and mechanisms of biological function.

#### (b) Technology Transfer and Cooperation with Industrial Organizations

The Contractor shall contribute to U.S. technological competitiveness through research and development partnerships with industry that capitalize on the Laboratory's expertise and facilities. Principal mechanisms the Contractor shall employ to effect such contributions are:

- (1) cooperative research and development;
- (2) access to user facilities;
- (3) reimbursable work for non-DOE activities;
- (4) personnel exchanges; and
- (5) licenses.

The Contractor shall cooperate with industrial organizations to assist in increasing U.S. industrial competency and contributions to applications of energy science and

technology. Such cooperation may include an early transfer of information to industry by arranging for the active participation by industrial representatives in the Laboratory's programs. Cooperation with industrial partners may include long-term strategic partnerships aimed at commercialization of inventions or the improvement of industrial products. The Contractor shall respond to specific near-term technological needs of industrial companies with special consideration given to working with small, disadvantaged and women-owned businesses as well as regional and local companies through special assistance programs targeting such organizations.

(c) University Research Partnerships and Science Education Programs

The Contractor shall develop partnerships with colleges and universities, including Minority-Serving Institutions, and manage programs to enhance science and mathematics and technology education at all levels. The Contractor shall conduct programs for pre-college students and faculty to enrich science and mathematics and technology education including programs to encourage members of under-represented societal groups to enter careers in the science and engineering fields.

The Contractor shall manage and operate programs for cooperation with academic and nonprofit research institutions to integrate research and education in scientific and technical fields underlying DOE's programs, as well as facilitate partnerships between the Laboratory and other research and educational institutions. This cooperation may include, but is not limited to, activities such as the following:

- (1) joint experimental programs with colleges, universities, and nonprofit research institutions;
- (2) exchange of college and university faculty and Laboratory staff;
- (3) student/faculty educational research programs at the precollegiate and collegiate level;
- (4) post-doctoral programs;
- (5) arrangement of and participation in regional, national, or international professional meetings or symposia;
- (6) use of special Laboratory facilities by colleges, universities, and nonprofit research institutions; and
- (7) provision of unique experimental materials to colleges, universities, or nonprofit research institutions or to qualified members of their staffs.

(d) International Research Collaboration

In accordance with established DOE policies, the Contractor shall maintain a broad program of international research collaboration. This collaboration will be both in areas where DOE has formal international cooperation agreements which assign the Contractor a specific role, as well as in areas of demonstrated general interest to DOE's research programs.

Collaboration may include, but is not limited to, such activities as:

- (1) participation in assigned aspects of international agreements;
- (2) maintenance of liaison with peer groups in the international R&D community;
- (3) participation in programs of international scientific organizations;
- (4) developing and proposing to DOE, joint experimental programs and/or work for others from international sponsors; and
- (5) participation in programs involving visits, assignments, or exchanges of staff.

(e) Non-DOE Research and Development Work

The Contractor shall conduct research and development work for non-DOE sponsors which: 1) is consistent with and complementary to the DOE's mission under this Contract; 2) does not adversely impact or interfere with execution of DOE assigned programs; 3) does not place the Laboratory in direct competition with the private sector; and 4) is of a nature where the Laboratory's personnel or facilities are particularly well-adapted and available. The Contractor may, only as authorized in writing by the DOE Contracting Officer, conduct such work for non-DOE sponsors. Work under this paragraph applies only to work performed under this Contract and shall not be construed in any way as limiting, modifying, or affecting any of the provisions of Contract DE-AC06-76RL01831 between the parties.

(f) General Assistance and Services

The Contractor shall furnish such technical and scientific assistance (including training and other services, material, and equipment) which are consistent with and complementary to the DOE's mission under this Contract, both within and outside the United States, to DOE and its installations, contractors, and interested organizations and individuals, as may be authorized, in writing, by the Contracting Officer.

(g) Economic Transition and Outsourcing

The Contractor shall perform the work under this Contract in a manner that helps the community establish a stable economic base over the long term. The Contractor shall:

- (1) aggressively pursue the expansion of the Laboratory's public and private contract research business.
- (2) support the creation of local business through technical assistance, technology transfer, and entrepreneurial leaves of absence.
- (3) encourage P-Card purchases made from local vendors where there is added value.
- (4) encourage staff voluntary and corporate giving to local arts and culture, and health and human services.



- (5) encourage procurement and subcontracts that are awarded to local and regional businesses wherever added value is the result (i.e., delivery, etc.).

(h) Fast Flux Test Facility (FFTF)

As directed by DOE, the Contractor shall provide support to implement the Secretary of Energy's decision to maintain the Fast Flux Test Facility (FFTF) in a standby condition to allow DOE to make a final decision on whether the facility should play a role in DOE's tritium production strategy. Such support by the Contractor during standby operations include, but are not limited to:

- (1) managing and staffing the FFTF Standby Project Office
- (2) the preparation of supporting safety, technical, and environmental analyses
- (3) a review of the feasibility of using the FFTF for medical isotope production.

If the decision is made to restart the FFTF for production and/or testing mission, then startup and future operational responsibilities may be assigned to the Contractor by the DOE, including the direct incorporation of the FFTF facility activities and staff as part of the Laboratory under this Contract.

(i) Disciplined Approach to Technology Development

The Contractor shall manage technology development with a disciplined approach from start to finish that strengthens the business focus and enhances the emphasis on commercially viable new technologies. The Contractor shall define, demonstrate (on a manageable scale), and implement (in a phased manner) a disciplined development system for technologies, driven by a systematic approach involving early business analysis, market assessments, stakeholder and potential customer involvement, forward-looking technical work, business feasibility testing, pursuit of alternative deployment pathways and robust connections to the dynamic marketplace. Initially, a pilot approach shall be implemented using selected technology development projects and, with "lessons learned" from this activity (including an analysis of the value gained relative to the costs of implementation), design and implement an approach across the entire Laboratory. The pilot approach shall attempt to identify all critical steps required to bring technology from an idea to actual deployment, including means by which the private sector may become engaged in the development and implementation of the technology at an earlier stage.

(j) Nuclear Energy and Nuclear Nonproliferation

The Contractor shall manage and implement Office of Nuclear Energy and Office of Nuclear Nonproliferation projects and programs as directed by DOE. These include, but are not limited to, the programmatic activities to reduce the most serious risks at Soviet-designed nuclear power plants, management of the activities in support of core conversion of the operating plutonium production plants and the management, development and deployment of technology and products to the isotope program.

(k) Defense Programs

The Contractor shall manage, develop and deploy Office of Defense Programs projects and programs as directed by DOE. This includes, but is not limited to, the development and deployment of the light water reactor tritium option.

C-4 ADMINISTRATION AND OPERATION OF THE LABORATORY

The Contractor shall manage, operate, protect, maintain, and enhance the Laboratory's ability to function as a DOE multi-program national laboratory, provide the infrastructure and support activities, support the accomplishment of the Laboratory's missions, and assure the accountability to the DOE under the results-oriented, performance-based provisions of this Contract.

(a) Strategic and Institutional Planning

The Contractor shall conduct a strategic planning process and develop Institutional Plans in consideration of DOE-provided planning guidance and strategic planning material to assure consistency with DOE missions and goals and with due regard for Environment, Safety, and Health issues.

(b) Environment, Safety, and Health (ES&H)

The Contractor shall perform all work in a manner that complies with applicable human health, safety, and environmental regulations, Executive Orders, laws, regulatory requirements, and consensus standards. The Contractor shall integrate safety and environmental awareness into all activities, including those of subcontractors at all levels. The Contractor shall identify hazards, manage risks, identify and implement good management practices, and make continued improvements in environment, safety, and health.

(c) Environmental Restoration and Waste Management

The Contractor shall conduct compliant environmental restoration activities; shall provide for the management of waste necessary to support Laboratory missions including storage, treatment, and disposal of hazardous, mixed, and radioactive wastes; characterize soil and groundwater and remediate or provide for remediation of contamination; prepare facilities and sites for decontamination and decommissioning; and coordinate and implement waste minimization and pollution prevention initiatives.

(d) Facilities Management, Maintenance and Operation

The Contractor shall perform overall integrated planning, acquisition, upgrades, and management of Government owned, leased, or controlled facilities and real property assigned to the Contractor for DOE use, including facilities off-site, utilizing a life cycle asset management system. The Contractor shall provide all maintenance and operations of facilities at the Laboratory. The Contractor shall conduct a maintenance management program, that will maintain the property in a manner which: (1) promotes operational safety, environmental protection and compliance, property preservation and cost effectiveness, (2) ensures continuity of operation, fulfillment of program requirements and protection of life and property from potential hazards, and (3) ensures the property will satisfy the requirements of current and projected use.

(e) Business Management

The Contractor shall manage the business and administrative operations of the Laboratory in a manner consistent with integrated safety management principles to include:

(1) Human Resources Management

The Contractor shall select, manage and direct the employees at the Laboratory and provide the scientific, technical, managerial, and support personnel necessary to maintain a comprehensive scientific laboratory and to perform the work under this Contract. Appendix A to this Contract documents or references the personnel policies, practices and plans for the Contractor.

The Contractor shall create and maintain an environment that promotes diversity and does not tolerate discrimination or harassment in any form.

(2) Financial Management

The Contractor shall maintain a financial management system responsive to the obligations of sound financial stewardship and public accountability. The overall system shall include an integrated accounting system suitable to collect, record, and report all financial activities; a budgeting system which includes the formulation and execution of all resource requirements needed to accomplish projected missions and formulate short- and long-range budgets; an internal control system for all financial and other business management processes; and a disbursements system for both employee payroll and supplier payments.

(3) Purchasing Management

The Contractor shall have a DOE-approved purchasing system to provide purchasing support and subcontract administration. The Contractor shall, when directed by DOE and may, but only when authorized by DOE, enter into subcontracts for the performance of any part of the work under this Contract.

(4) Personal Property Management

The Contractor shall have a DOE-approved personal property management system for acquisition, accountability, utilization, and disposal of Government personal property.

(5) Communications and Public Affairs

The Contractor shall conduct communications, information, and public affairs programs including internal and external communications; community involvement and outreach; interactions with the media, businesses, and the scientific and technical community; and liaison with local, state, and federal agencies.

(6) Audits and Assessments

The Contractor shall conduct an internal audit program and shall coordinate all external audits, reviews, and appraisals.

(f) Safeguards and Security

The Contractor shall manage the Laboratory security functions in accordance with established DOE Orders and requirements and as approved by DOE. The Contractor shall integrate security awareness into all activities where appropriate including those of subcontractors. The Contractor shall manage the DOE's Hanford Declassification Project.

(g) Legal Affairs

The Contractor shall maintain a legal program to support Contract activities including those related to patents, licenses, and other intellectual property rights; subcontracts; technology transfer; environmental compliance and protection; labor relations; and litigation and claims.

(h) Self-Assessment Program

The Contractor shall conduct an ongoing self-assessment process to assess performance in Laboratory management and operations and in science and technology programs.

(i) Local and DOE Community Involvement

The Contractor shall be a member of the Hanford family, participating in community affairs as directed and/or approved by DOE. Involvement and dedication to economic diversification for the community is required.

The Contractor shall furnish technical and scientific assistance (including training and other services, material, and equipment), which are consistent with and complementary to the DOE's Laboratory mission under this Contract, both within and outside the United States, to the DOE and its installations, contractors, and interested organizations and individuals, as may be authorized, in writing, by the Contracting Officer.

(j) Freedom of Publication

Subject to other provisions of this Contract, Laboratory investigators shall have full freedom of publication of the results of unclassified basic research work conducted pursuant to this Contract, in order to promote scientific progress and technical development, provided that the provisions designed to protect "restricted data," "formerly restricted data," "National Security Information" shall be complied with, that the appropriate patent clearances are obtained, that appropriate licenses and notices are effected, and that DOE policies regarding protection and dissemination of "Applied Technology", Controlled Scientific and Technical Information, or sensitive information are followed. It is agreed by all parties that it is desirable in public releases to acknowledge fully the contributions of all parties, including DOE, to work thus reported.

(k) Relationship with Project Hanford Management Contractor

The Project Hanford Management Contractor (PHMC), under a separate prime contract, provides management and integration services at the Hanford site. Work performed by the Contractor to support PHMC activities, and PHMC activities to support the Laboratory are to be conducted in accordance with the current Memorandum of Understanding entitled "Memorandum of Agreement Between Fluor Daniel Hanford and Pacific Northwest National Laboratory For the Performance and Payment of Services," originally executed on October 1, 1996.

The Contractor shall provide, as appropriate, information required by the PHMC to integrate the Hanford Site's budgets, system engineering, technology development, analytical services under the Hanford Analytical Services Program, and other areas as deemed appropriate by RL. The information provided shall be in format and content as requested by the PHMC.

Further, the Contractor shall implement the agreement between the Contractor and the PHMC to form a team to work in collaboration with the PHMC's major subcontractors in executing the environmental science and technology management function which the PHMC will lead as part of its Management and Integration approach. The Agreement sets forth the understandings under which the PHMC is proposing to employ the Laboratory resources in execution of the work. The Agreement does not hinder either party from responding independently or in conjunction with any other party to any business opportunity.

(l) Reports and Other Deliverables

The Contractor shall prepare, submit, disseminate, or otherwise publish financial, schedule, scientific, and technical performance plans and reports; and other information and deliverables consistent with the needs of the various programmatic sponsors and other customers or as required elsewhere in this Contract or as specifically required by the Contracting Officer.

(m) Infrastructure Reduction

An overall objective of the DOE is to reduce its infrastructure to the minimum necessary, while remaining consistent with current and anticipated mission assignments, prudent business practices, and strategic plans. Accordingly the Contractor shall use innovative approaches, new technology, and other appropriate creative ideas to reduce the overall site infrastructure inventory. The Contractor shall aggressively pursue opportunities advantageous to the Government to subcontract and outsource infrastructure work on a competitive, fixed-or fixed-unit priced basis.

(n) Information Resources Management

The Contractor shall develop and deploy an effective, efficient, safe and secure computing, telephone and video infrastructure appropriate for the conduct of its research and development missions and to support its business, management and record keeping responsibilities.

(o) Counterintelligence Program

The Contractor shall implement, manage, and oversee the Counterintelligence (CI) Program for the Laboratory in accordance with established DOE Orders and requirements. The Contractor shall integrate CI awareness into all activities where appropriate, including those of subcontractors.